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REDACTED – FOR PUBLIC INSPECTION

January 8, 2010

BY HAND

Ms. Marlene Dortch
Secretary
Federal Communications Commission
455 12th Street, SW
Washington, DC 20554

Re: **GN DOCKET NOS. 09-47, 09-51, 09-137**

Dear Ms. Dortch:

Pursuant to the Protective Order (DA 09-2415, rel. Nov. 16, 2009) in the above-referenced dockets, I am submitting herewith one (1) copy of the Comments of TransWorld Network Corp. in response to Public Notice # 28 in the above-referenced dockets, appropriately labeled "**HIGHLY CONFIDENTIAL INFORMATION SUBJECT TO PROTECTIVE ORDER IN GN DOCKET NOS. 09-47, 09-51, 09-137**;" and two (2) copies of a redacted Public Version of these comments, labeled **"REDACTED – FOR PUBLIC INSPECTION.**

Kindly direct any questions concerning this transmittal to the undersigned counsel.

Sincerely,

DAVIS WRIGHT TREMAINE LLP

James M. Smith
Counsel for TransWorld Network Corp.

Enclosures

REDACTED – FOR PUBLIC INSPECTION

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the Matter of:

	)	GN DOCKET NO. 09-47
	)	
A National Broadband Plan for Our Future	)	GN DOCKET NO. 09-51
	)	
	)	GN DOCKET NO. 09-137

COMMENTS OF TRANSWORLD NETWORK CORPORATION

NBP PUBLIC NOTICE # 28

Colin Wood
Chief Executive Officer
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(813) 890-2200

January 8, 2010

I. INTRODUCTION AND SUMMARY

TransWorld Network Corp. respectfully submits these comments in response to the Public Notice (the "Notice") issued by the Federal Communications Commission ("FCC" or "Commission") concerning challenges to broadband deployment financing.[1]

TransWorld Network Corp. (TWN) is a telecommunications company founded in 1988. We are headquartered in Tampa, Florida, own and operate a fixed wireless network covering approximately 32,000 square miles in New Mexico and Arizona, and are on track to double coverage to almost 70,000 square miles by year-end 2011. We provide five key services to our customers, including broadband access services, VoIP-based local and long distance telephone services, messaging services and other managed services. We operate exclusively in partnership with 115 (and growing) Rural Electric Power Cooperatives through long term operating agreements. We bring broadband services to the customers of these Co-ops. These, of course, are customers in some of the most remote areas of America. Areas where the availability of basic electricity required extraordinary innovation early in the last century and where broadband deployment requires no less of an effort today.

As you may imagine, our company has had to successfully overcome numerous challenges which would otherwise have precluded our rural broadband deployment. In fact, we have made a number of acquisitions of smaller rural broadband companies who failed in their own attempts to serve these rural customers, particularly in the southwestern U.S. In the process, we have gained significant, real-world insights that we feel are directly relevant within the context of the FCC's request for comments in NBP Public Notice # 28. Within the constraints of the questions posed in the Public Notice, we offer comments in areas of specific concern to TWN, as we seek to mitigate obstacles to the expansion of broadband service into some of the most remote areas of the country.

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[1] *Comments Sought on Addressing Challenges to Broadband Deployment Financing*– NBP Public Notice #28, GN Docket Nos. 09-47, 09-51,09-137, Public Notice, DA 09-2610 (Dec. 18, 2009).

On December 3, 2009 we met with members of the FCC's National Broadband Plan team in order to discuss ways in which we believe the FCC may use tools currently at its disposal to accelerate broadband deployment in rural areas of the nation and, additionally, to enable deployment in areas where a sustainable business plan is not currently feasible and deployment is, therefore, not financeable. We suggested that, as they pertain to wireless broadband services, the FCC's rules currently in place to manage unlicensed radio frequency spectrum in the most densely populated areas of the country would, in many instances, inhibit ubiquitous broadband deployment if applied in full measure in the most sparsely populated areas. We further suggested that the FCC, using tools immediately at its disposal, could apply a finer granularity to regulatory management of the asset represented by unlicensed RF spectrum, in order to achieve a greater return on that asset. Finally, we suggested that a web-based, automated waiver process could be created to provide the means by which this more granular regulatory treatment could easily be administered. In this way, the FCC could quickly remedy situations where a "broad-brush" application of the current rules would only forestall a service provider's investment, eliminate any chance of external financing, and remove all opportunity for access to broadband services by Americans living in these remote areas.

II. QUESTION 1. WHAT EXISTING FEDERAL GOVERNMENT INSTITUTIONS, PROGRAM MECHANISMS, AND SOURCES OF FUNDING COULD BE EMPLOYED TO CREATE GREATER INCENTIVES FOR PRIVATELY FINANCED RURAL BROADBAND DEPLOYMENT?

In response to Question 1 of the Public Notice, we submit that the FCC itself is a federal government institution whose rules could be more granularly applied in order to create greater incentives for privately financed rural broadband deployment. More specifically, we offer for consideration a way in which the ultimate goal of this Question may be realized. Appended hereto is a detailed case study of an actual TWN service area – **[REDACTED]** – that demonstrates in graphic detail the benefits of such an automated waiver process for broadband deployments in qualifying rural areas.

Below is a discussion of the suggested process whereby the FCC may, in certain unlicensed spectrum, grant relief from current transmission power limits and antenna configurations in qualifying rural areas. These are areas where the rules serve no practical purpose, since the possibility of transmission interference is so remote as to be negligible, and where an alternative process of simply organizing spectrum use through automated waiver requests can serve as an effective means of creating a financeable service provider business model, thus accelerating broadband deployment to such remote areas.

A. Regulatory Parameters Implicated by Proposed Automated Waiver Requests

Based on our experience in remote communities **[REDACTED]** as demonstrated in the Appendix, we turn to the subject of the specific waiver requests and what parameters might comprise such requests. First, we view waiver requests only within the confines of current unlicensed spectrum in the following bands: the U-NII 5 GHz bands of 5.25 - 5.35 GHz, 5.47 - 5.725 GHz, and the unlicensed "white spaces" band comprised of unused television frequencies between 54-698 MHz (TV Channels 2-51). The 3.65 GHz band, while selectively beneficial, does not presently meet the economic criteria for an acceptable investment risk for TWN, since the available bandwidth of 50 MHz is insufficient to support the operational costs and customer density requirements for base stations to break even in our business model.

The FCC controls unlicensed spectrum with such regulatory parameters as signal sensing requirements and limitations on transmission power and antenna configurations. These controls have, historically, treated different bands of spectrum differently.

- ***Regulatory Parameter: Absolute Power Limitation***

Table 1 is a chart identifying the current, absolute power limitations on equipment operating in each spectrum band of interest. The FCC terminology of Intentional Radiator is the transmitter power of the wireless equipment, such as a wireless access point.

Table 1 – FCC limits with respect to Point-to-MultiPoint transmission power for the identified bands

Frequency Band	Channels	Point-to-MultiPoint Intentional Radiator Power	Point-to-MultiPoint Maximum EIRP
54-698 MHz	TV Channels 2 - 51	1W (Fixed)	4W (Fixed)
5.25-5.35 GHz	52, 56, 60, 64	200mW	800mW
5.470-5.725 GHz	100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140	200mW	800mW
5.725-5.825 GHz	149 - 161	800mW	3.2W

- ***Regulatory Parameter: Dynamic Frequency Selection***

Dynamic Frequency Selection (DFS) is a control mechanism to allow unlicensed devices to share spectrum with other systems. It detects signals from other systems and avoids co-channel operation with these systems. The current FCC rules require DFS in the 5.2 GHz and 5.4 GHz bands solely for the detection of existing radar systems.

- ***Regulatory Parameter: Transmission Power Control***

Transmission Power Control (TPC) is a control feature that adjusts a transmitter's output power in response to an input signal or a condition (e.g., a command signal is issued by a controller when the received signal falls below a predetermined threshold). As the signal level at the receiver rises or falls, the transmit power will decrease or increase as needed. The current FCC rules require TPC in the 5.2 GHz and 5.4 GHz bands.

- ***Regulatory Parameter: Antenna Configuration***

Within the newly unlicensed white spaces band of spectrum, the FCC has promulgated rules for minimum and maximum height restrictions of both customer premises and base station antenna deployments that have had the unintended effect of severely reducing the feasibility of use of this spectrum for broadband deployment. The current minimum height requirement of 10 meters for a receive antenna is not workable in mostly residential environments where the average roof height of a home is 3 meters; and the maximum antenna height of 30 meters would, for example, unnecessarily limit the fixed base station coverage in areas **[REDACTED]** where more than five adjacent channels of white space are available. The result is that the deployment of more base

stations than is otherwise necessary would be required, which would increase the cost per covered POP[2] considerably and, in many cases, render the planned deployment unprofitable.

- ***Regulatory Parameter: Database Queries***

The FCC's current "white spaces" rules require that all unlicensed TV band devices (TVBDs), including all fixed and all personal/portable devices except for those that operate in Mode I under control of a fixed or Mode II personal/portable device, will be required to access a TV bands database to obtain information on the available channels at their location and all unlicensed fixed TVBDs will be required to register their operations. This database is to be administered by a third party.

B. Automated Waiver Requests

- ***Absolute Power Limitation***

There is a compelling benefit to striking a balance between the need for regulation of absolute transmission power level, necessary in order to resolve potential signal interference issues, and the superior performance and RF penetration attributes of higher transmission power levels where the likelihood of interference is minute. We suggest that the FCC could, via wavier, grant the right to operate at transmission power levels in excess of current limits in unserved, rural areas where the likelihood of interference is negligible.

Such a waiver could be made available for devices operating in the U-NII 5 GHz bands of 5.25 - 5.35 GHz, 5.47 - 5.725 GHz and the white spaces band of 54-698 MHz. If the TV bands database concept were extended to the U-NII 5 GHz bands, fixed devices in those bands could be located, identified, quantified and registered. The waiver applicant would similarly register each fixed device in the appropriate band and enter the requested maximum operating transmission power level for that device (up to a maximum of 20W E.I.R.P), during the automated, web-based application process. The application software would query the database in order to determine whether or not the requested power level would have any potential to interfere with other registered devices. If not, the waiver would be granted (and so noted in the database). If the

[2] For clarity, a reference to "covered POPs" is meant to quantify the number of individuals, within a defined area, to which TWN can provide its broadband service.

database query showed that interference would be possible, the application could use the results of the database query to suggest a lower maximum power level (or, alternatively, a different operating band and/or recommended maximum transmission power level) that would not pose a risk of interference with currently registered equipment in the subject area.

The waiver applicant would be subject to the FCC's existing TPC rules, such that the actual transmission power level of devices operating under waiver would be automatically reduced to the minimum level necessary for acceptable transmission performance.

We expect that, under this database query system, the applicant would receive a waiver of the requirement for DFS, since the database registration process for equipment operating in these bands would almost certainly mitigate the need for signal sensing.

- ***Antenna Configuration***

With the database query system in place for all devices operating in the white spaces band of 54-698 MHz, the minimum height requirement of 10 meters for a receive antenna is, in our opinion, not necessary. When further weighted with the evidence that such an impediment would preclude the use of the spectrum for residential applications, the argument for outright removal of the restriction is formidable. In the absence of the removal of the restriction, we suggest that a waiver request process, using the database registration concept outlined above, is appropriate so that this valuable spectrum can be used in unserved areas of rural America.

The maximum antenna height of 30 meters should also be subject to waiver, to the extent the database shows that no interference with registered devices would occur. The result of such a waiver process will, in our opinion, accelerate the deployment of broadband services in rural areas and ensure the efficient use of the white spaces spectrum while safeguarding both licensed and unlicensed operators from unacceptable ambient interference levels.

C. Preserving Competition Under an Automated Waiver Process

The use of unlicensed spectrum to spur competition in broadband service deployment is an unmitigated success. Any waiver process should be considered in terms of its effect on those who would compete with the waiver applicant. With this in mind we suggest that, in rural areas

of the country, the entire unlicensed spectrum identified above is considered holistically when the second, third and fourth applicant seek waivers in order to efficiently serve the same area. When an operator already exists in a given area, using a waiver in a given frequency band, the waiver application software can use information in the registration database in order to determine what power levels in what unlicensed bands can support the subsequent request(s).

In sum, TWN's experience shows that the current service provider business model for broadband deployment using unlicensed spectrum suffers from the broad-brush, "one size fits all" application of rules which, in rural areas, achieves quite the opposite effect of the original intent. That is, the current rules can be so restrictive as to preclude the development of an economically viable (and therefore, financeable) business model. Consequently, no service provider can enter many rural markets with a sustainable service. The waiver process we suggest here is a method whereby the FCC may tailor regulatory enforcement to, at once, achieve its oversight goals while accelerating the deployment of ubiquitous broadband services.

III. CONCLUSION

This proposed process would provide a significant boost to the performance of broadband deployments in rural areas and would serve as an important catalyst to private investment. The willingness of any prospective investor to put capital at risk is based upon the probability of an acceptable return. The widely held and pervasive lack of confidence in that return on investment is a strong barrier to broadband deployment in rural areas of America. If the automated waiver process proposed herein is made available by the FCC, we believe direct, positive results will be evident almost immediately.

Respectfully submitted,

Colin Wood/gms

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Appendix I

[REDACTED]

[REDACTED MATTER]

[REDACTED MATTER]

[REDACTED MATTER]